Poly Day 1 WS Name _____ Per ____ Date _____

Sketch the general look of each polynomial. Then state why you know it looks that way.

1. $f(x) = 3x^4 + 5x^3 + 2x^2 - 5$ _____

2. $f(x) = -3x^5 + 5x^3 + 2x - 5$ _____

3. $f(x) = 2x^3 - 3x^2 + 2x - 5$ _____

4. $f(x) = -5x^{25} + 24x^{20} - 20$ _____

5. $f(x) = -70x^{30} + 20x^3 + 50x^2$ _____

Find the zeros of each polynomial and state the multiplicities if there are any.

6. $f(x) = x^3 - 12x^2 + 36x$

7. $f(x) = 2x^3 - 6x^2$

8. $f(x) = 6x^4 - 33x^3 - 18x^2$

9. $f(x) = x^4 - x^3 - 20x^2$

10. $f(x) = x^3 - 4x^2 - 25x + 100$

11. $f(x) = x^5 - 5x^3 + 4x$

12. $f(x) = x^5 - 6x^3 + 8x$

13. $f(x) = 3x^2 - 10x - 8$

14. $f(x) = x^2 + 10x + 25$

Using your graphing calculator, find all of the zeros of the polynomial. Round to the nearest hundredth.

15. $f(x) = -x^4+9x^2-20$

16. $f(x) = 3x^2-12x+3$

17. $f(x) = 2x^4-2x^2-40$

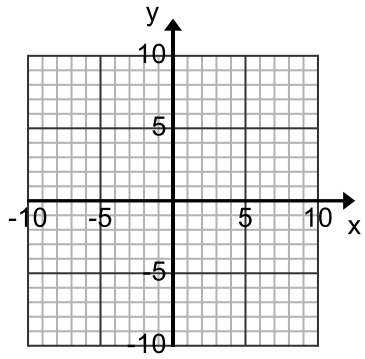
18. $f(x) = x^5-6x^3+9x$

19. $f(x) = 5x^2-10x-5$

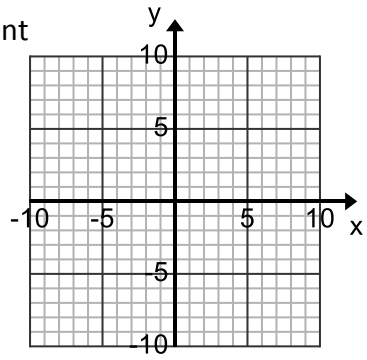
20. $f(x) = x^5+x^3-6x$

Sketch the graph of a polynomial function that satisfies the given conditions. Explain your reasoning.

21. Third degree polynomial with two real zeros and a negative leading coefficient



22. Fourth degree polynomial with three real zeros and a positive leading coefficient



23. Fifth degree polynomial with three real zeros and a positive leading coefficient